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Alternatives to Using Pesticides in Schools

What is Integrated Pest Management?

A Beyond Pesticides/NCAMP Fact Sheet

A strong integrated pest management (IPM) definition and policy is one of the best ways to minimize or eliminate children's exposure to pesticides while at school. IPM is a term that is used loosely with many different definitions and methods of implementation. IPM can mean virtually anything the practitioner wants it to mean. Beware of chemical dependent programs masquerading as IPM.

Integrated Pest Management (IPM) is a program of prevention, monitoring, and control which offers the opportunity to eliminate or drastically reduce pesticides in schools, and to minimize the toxicity of and exposure to any products which are used. Education, in the form of workshops, training sessions and written materials, is an essential component of an IPM program - for everyone from administrators, maintenance personnel, cafeteria staff and nurses to parents and students.

Integrated Pest Management Defined

IPM is a managed pest management system that: (a) eliminates or mitigates economic and health damage caused by pests; (b) minimizes the use of pesticides and the risk to human health and the environment associated with pesticide applications; and, (c) uses integrated methods, site or pest inspections, pest population monitoring, an evaluation of the need for pest control, and one or more pest control methods, including sanitation, structural repairs, mechanical and living biological controls, other non-chemical methods, and, if nontoxic options are unreasonable and have been exhausted, least toxic pesticides.

The Six IPM Program Essentials

- **Monitoring**. This includes regular site inspections and trapping to determine the types and infestation levels of pests at each site.

  Record-Keeping. A record-keeping system is essential to establish trends and patterns in pest outbreaks. Information recorded at every inspection or treatment should include pest identification, population size, distribution, recommendations for future prevention, and complete information on the treatment action.

- **Action Levels**. Pests are virtually never eradicated. An action level is the population size which requires remedial action for human health, economic, or aesthetic reasons.

- **Prevention**. Preventive measures must be incorporated into the existing structures and designs for new structures. Prevention is and should be the primary means of pest control in an IPM program.

- **Tactics Criteria**. Under IPM, chemicals should be used only as a last resort only, but when used, the least-toxic materials should be chosen, and applied to minimize exposure to humans and all non-target organisms.

- **Evaluation**. A regular evaluation program is essential to determine the success of the pest management strategies.

How to Implement a School IPM Program

Decision-making Process. Create an IPM decision-making process that draws on accurate, timely information to make pest prevention and management decisions. Determine the needs of the site, and set "action thresholds;" levels of pest populations at which remedial action is necessary. This will vary depending on the site - what type of structure it is, who is using it, and how it is being used. For instance, cafeterias will need to be more pests free than the equipment room. This decision should be made with someone knowledgeable about the pest needing control and the risks of pesticides, someone who does not have a financial interest in selling a pesticide product.

Monitor. Implement a monitoring program designed to provide accurate, timely information on pest activity - to establish whether there is in fact a pest problem and to identify its causes. Implement a schedule and a plan for monitoring pest populations and the success of pest control efforts. This will help determine acceptable pest population levels, effective reduction measures, and breach of the action threshold. The best way to monitor for many pests, like cockroaches, is with sticky traps. They should be placed throughout the school structures at many different levels. Set the traps for 24 hours, and then record your results. The traps should be used on a regular schedule, such as monthly.

Pest Prevention Practices. Use practices that eliminate the need for hazardous pesticides - changing the conditions to prevent problems, including occupant education, careful cleaning, pest-proof waste disposal, and structural maintenance. Learn about what the specific pest needing control needs to live - food, water, and habitat. Reduce the sources of food and water. For instance, always clean up food and food areas, place food in airtight, sealed containers, dispose of food and food wrappers in sealed garbage containers, repair leaky pipes and faucets, caulk up cracks and crevices, and eliminate clutter whenever possible. Remember that it can take some time for these methods to be effective.

Least Toxic Pesticides Defined

Least Toxic Pesticides include:

(a) boric acid and disodium octobrate tetrahydrate,
(b) silica gels,
(c) diatomaceous earth,
(d) nonvolatile insect and rodent baits in tamper resistant containers or for crack and crevice treatment only,
(e) microbe-based pesticides,
(f) pesticides made with essential oils (not including synthetic pyrethroids) without toxic synergists, and
(g) materials for which the inert ingredients are nontoxic and disclosed.

The term 'least toxic pesticides' does not include a pesticide that is

(a) determined by EPA to be a possible, probable, or known carcinogen, mutagen, teratogen, reproductive toxin, developmental neurotoxin, endocrine disrupter, or immune system toxin;
(b) a pesticide in EPA's toxicity category I or II; and,
(c) any application of the pesticide using a broadcast spray, dust, tenting, fogging, or baseboard spray application.

Mechanical, Biological, and Least Toxic Controls. If all other methods have failed, and monitoring shows that your pest population is still above your action thresholds, use mechanical traps, such as sticky traps, and biological controls, such as pheromones and parasitic insects. Then, and only then, should you consider spot treatment of the least toxic pesticides. You must weigh the risks associated with the use of a pesticide against the problems caused by the pest. Consider your options carefully, being mindful not to blindly jump at a solution that may have risks without first collecting the facts. If you must use a pesticide, you should the least toxic pesticide available. Boric acid, formulated from a natural mineral, is an effective ant and cockroach stomach poison. When properly applied, it has a relatively low toxicity compared to other pesticides. Further, it does not evaporate into the indoor air of the structure, unlike many other pesticides. Look for boric acid that has less than one percent of inert ingredients, therefore you have a better idea of what you are applying and its risks than with most other pesticides. While boric acid is somewhat slower acting than other materials, it is highly effective over a long period of time. But remember, all pesticides are poisones designed to kill, and should be handled carefully and with respect. Boric acid should be applied only in areas where it will not come in contact with people - cracks and crevices, behind counters, and in baseboards. Applicators should wear protective clothing, gloves, and a filter mask.